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F O R E W O R D

This Circular contains an extract from a report issued by the Civil Aeronautics Administration of the United States of America on recent VHF omni range improvements and status of the U.S.A. programme.

The Special Radio Technical Division (COT) of ICAO, in the Final Report of its First Session, recommended that on international trunk routes, where short distance navigational aids are required, VHF "omni ranges" of the CW phase-comparison type, should be installed as soon as practicable and should be kept in operation until at least January 1st 1955.

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SUMMARY

The performance of the VHF omni range has been demonstrated to exceed by a good margin the specified requirements of the COT Division of ICAO. All electrical and mechanical problems encountered in its development have been satisfactorily solved. Siting of stations remains the major installation problem, but it has been found that satisfactory operation can be secured on the basis of clearing a 700-foot radius for obstacles 30 feet high, and by using a large dish-shaped counterpoise in rough terrain where clearing is not practical.

Independent tests made by the Collins Radio Company on ten omni ranges selected at random showed that course variations were less than two degrees for 99.25 percent of the flight time of 14 hours 43 minutes devoted to such measurements.

Initial flight tests have been made on a course line computer developed for CAA by the Minneapolis-Honeywell Regulator Company, using the omni range and DME installed at Indianapolis. Parallel tracks over distances of 120 miles were flown with an accuracy of better than two miles. Distance to an arbitrarily selected way point was also indicated with an accuracy of two miles.

To meet the need of private flyers for a combined navigation and communication receiver, negotiations are under way for a development contract, intended to establish facilities for quantity production at low cost.

Among improvements effected in the omni range system during the past year and a half are the following:

- 1) A circular antenna shelter has been devised which eliminates errors found to be caused by the unsymmetrical configuration of previously used shelters.

- 2) Resistance cloth has been installed around the antenna supporting pedestals to reduce errors caused by the emission of vertically polarized energy.